PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference PA-05010/PCT	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/JP2005/002532	International filing date *(day/month/year)* 10 February 2005 (10.02.2005)	Priority date *(day/month/year)* 12 February 2004 (12.02.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant SHOWA DENKO K.K.		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 14 August 2006 (14.08.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Yoshiko Kuwahara
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Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
SHIMIZU Hisayoshi

Idemitsu Nagahori Bldg.,4-26,Minamisemba 3-chome,Chuo-ku,Osaka-shi,Osaka 5420081 JAPAN

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WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*	21.6.2005
Applicant's or agent's file reference	FOR FURTHER ACTION See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2005/002532	10.02.2005	12.02.2004

International Patent Classification (IPC) or both national classification and IPC
Int.Cl.[7] B22D11/06, B21B1/22, 3/00, B22D11/00, C22C21/00, F28F21/08

Applicant
SHOWA DENKO K.K.

1. This opinion contains indications relating to the following items:

- [x] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [x] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion	08.06.2005
Name and mailing address of the ISA/JP	Authorized officer 4E 8727
Japan Patent Office 3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan	NOBORU NAKAZAWA Telephone No. +81-3-3581-1101 Ext. 3425

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/002532

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/JP2005/002532

Box No. V **Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3-7,9,10,14,15	YES
	Claims	1,2,8,11-13,16	NO
Inventive step (IS)	Claims		YES
	Claims	1-16	NO
Industrial applicability (IA)	Claims	1-16	YES
	Claims		NO

2. Citations and explanations

The following documents have been considered for the purpose of this report :

D1 : JP 2003-71588 A(SKY ALUMINIUM Ltd.),2003.03.11,
Fig.1, 【0024】 - 【0035】 (Family:None)

D2 : JP 9-310137 A(FURUKAWA ELECTRIC),1997.12.02,
【0018】 - 【0036】 (Family:None)

D3 : JP 2000-204427 A
(SUMITOMO LIGHT METAL INDUSTRIES,Ltd.),2000.07.25,
【0015】 - 【0028】 (Family:None)

D4 : JP 2002-241910 A(FURUKAWA ELECTRIC),2002.08.28,
【0021】 - 【0079】 & US 2003/0015573 A1

1. The subject matter of Claims 1, 2, 8, 16 is not novel or doesn't involve an inventive step over the document D1 cited in the ISR. The reason is as follows.

Fig. 1 of D1 describes that the skin material (1) winds halfway around the cooling roller (7), whose diameter is 400mm. Therefore, a contact length between the skin material (1) and the cooling roller (7) is 628 mm ; $400 \cdot \pi / 2 = 628$ mm.

The thickness of the skin material (1) is 1.1mm, while it will be 1.0mm after hot roll cladding (see 【0031】).

That means the contact length is larger than 100 times of the thickness ; $628 > 100 \times 1.1 = 110$.

Therefore, D1 implies the subject matter of Claim 1.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box No.V

2. The subject matter of Claim 3 does not involve an inventive step over the document D1 cited in the ISR. The reason is as follows.

D1 describes that the thickness of the skin material (1) is 1.1mm (see 【0031】). The thickness of the skin material in Claim 3 differs from that of D1. However, the thickness could be modified within workshop modifications and the difference of the thickness is not significant.

3. The subject matter of Claims 4-5 does not involve an inventive step over the documents D1 and D2 cited in the ISR. The reason is as follows.

D2 describes clad material which is covered with cladding skin material on both surfaces of the core material.
D2 also describes that the said skin material is made of Al−Si series alloy, which is identical to the skin material in Claims 4-5.

Since the inventions described in D1 and D2 belong to the same technical field as to cladding, it is perceived that a person skilled in the art could have easily made the inventions in Claim 4-5 by applying the technique of D2 to the technique of D1.

4. The subject matter of claims 6-7 does not involve an inventive step over the documents D1 and D3 cited in the ISR. The reason is as follows.

D3 describes clad material which is covered with cladding skin material on both surfaces of the core material.
D3 also describes that one of the said skin materials is made of Al−Zn series alloy, which is identical to the skin material in Claims 6-7.

Since the inventions described in D1 and D3 belong to the same technical field as to cladding, it is perceived that a person skilled in the art could have easily made the inventions in Claim 6-7 by applying the technique of D3 to the technique of D1.

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box No.V

5. The subject matter of Claims 9-10 does not involve an inventive step over the documents D1 and D2 cited in the ISR. The reason is as follows.

D2 describes clad material which is covered with cladding skin material on both surfaces of the core material.
D2 also describes that the said core material is made from the molten metal, which is identical with that of Claimed 9-10.

6. The subject matter of Claim 11 is not novel or doesn't involve an inventive step over D1 cited in the ISR. The reason is as follows.
D1 (see【0031】) describes that cold rolling is performed after hot roll cladding.

There seems no difference between the clad material in Claim 12-13 and that in D1 from a point of view of materials.

7. The subject matter of Claim 14 does not involve an inventive step over D1 and D2 cited in the ISR. The reason is as follows.

It is well-known that an average spacing of a dendrite secondary arm spacing narrows when the cooling rate becomes fast. Therefore it is perceived that a person skilled in the art could have easily made the invention in Claim 14 by controlling the cooling rate of D1 to get the appropriate average spacing of a dendrite secondary arm spacing.

8. The subject matter of claim 15 does not involve an inventive step over the document D1 cited in the ISR. The reason is as follows.

It is well-known that the clad material is often used for manufacturing heat exchanger component material.
Therefore it is perceived that a person skilled in the art could have easily made the invention in claim 15 by using the clad material of cited document D1 to manufacture the heat exchanger component material.

9. D4 describes fin material of heat exchanger component material without using cladding.